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## City of Hope performs 10,000th bone marrow transplant, works toward therapy for HIV/AIDS

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Last week the City of Hope announced performing their 10,000th bone marrow transplant since 1976 when they were among the first centers to carry out the risky procedure. They said:

“ City of Hope performed its first successful bone marrow transplant in 1976 on a young college student from Indiana who was diagnosed with acute myeloid leukemia. His physician told him he should prepare himself for inevitable death. But his cousin, a physician in Los Angeles, knew that City of Hope was launching a bone marrow transplant program. The young student went to City of Hope to undergo a bone marrow transplant, and he has remained in remission for 35 years.

Bone marrow transplants are the original stem cell transplant because it's the blood-forming stem cells in the bone marrow that are being transplanted from the donor and that rebuild the blood supply of the sick person. The procedure has dramatically increased survival rates for diseases such as leukemia, lymphoma and myeloma, and in one recent dramatic case also seems to have treated an AIDS patient.

This AIDS patient - widely known as the Berlin patient - received blood-forming stem cells from a person who was immune to HIV. Those cells rebuilt the patient's blood system with cells that could resist the HIV virus. The announcement of that case was dramatic and exciting. However, there aren't enough HIV-resistant people to provide transplants for all people infected with HIV. CIRM is funding two teams of researchers - including one at City of Hope - who are genetically engineering blood-forming stem cells to contain the mutation that seemingly cured the Berlin patient. A transplant with those cells could leave patients resistant to the infection and carry less risk because it's their own cells being modified. We should know in a few years whether the FDA considers the research ready to test in humans.

What's interesting is that the City of Hope announcement about their 10,000th bone marrow transplant is being hailed by some as a victory for adult stem cells. Blood-forming stem cells have by now cured countless people of blood diseases, but they can't cure diseases of the nerves, liver, pancreas or any organ other than blood. Mesenchymal stem cells, also found in bone marrow, have been tested as therapies in a number of diseases, and they seem to have improved symptoms in some diseases, but they have not been shown to replace damaged tissue or cure the disease.

Scientists have found tissue-specific stem cells in many organs and one day they might be used to treat disease -- and if they do there's little doubt CIRM will have been involved in some way in that discovery. Some CIRM grantees are already working to develop new therapies with tissue-specific stem cells from brain. But until there's a cure for every disease that has yet or could one day strike my loved ones, I think it's too early to claim which stem cell type is best for all diseases.

This video about the City of Hope HIV/AIDS disease team features CIRM board member Jeff Sheehy:

- A.A.

**Tags:** city of hope, AIDS

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